KIOWA WARRIOR

Army ACAT IC Program

Total Number of Systems:	387
Total Program Cost (TY$):	$3.26B
Average Unit Cost (TY$):	$8.1M
Full-rate production:	
Kiowa:	1QFY86
Kiowa Warrior:	3QFY89

Prime Contractor

General Dynamics Land Systems

SYSTEM DESCRIPTION & CONTRIBUTION TO JOINT VISION 2010

The OH-58D Kiowa Warrior is a two-place single engine armed reconnaissance helicopter. The Kiowa Warrior is an armed version of the earlier OH-58D Kiowa Advanced Helicopter Improvement Program aircraft, which itself was a highly modified version of the OH-58A/C Kiowa. The principal difference between the Kiowa Warrior and its immediate OH-58D predecessor is a universal weapons pylon on both sides of the aircraft, capable of accepting combinations of the semi-active laser Hellfire missile, the Air-to-Air Stinger missile, 2.75" Folding Fin Aerial Rocket pods, and a 0.50 caliber machine gun. In addition to these weapons, the Kiowa Warrior upgrade includes changes designed to provide improvements in air-to-air and air-to-ground communications, mission planning and management, available power, survivability, night flying, and reductions in crew workload through the use of on-board automation and cockpit integration.

The primary mission of the Kiowa Warrior is armed reconnaissance in air cavalry troops and light attack companies. In addition, the Kiowa Warrior may be called upon to participate in Joint Air Attack operations, air combat, limited attack operations, or artillery target designation.

The Kiowa Warrior leverages ***information superiority*** and ***precision engagement*** capabilities to enhance the Army's ***dominant maneuver*** in battle.

BACKGROUND INFORMATION

The Kiowa Warrior is a Category I acquisition program. The Army plans to acquire approximately 400 Kiowa Warriors through either modification or retrofit of existing OH-58 Kiowas. The Kiowa Warrior replaces AH-1 attack helicopters currently found in air cavalry troops and light attack companies, and OH-58 Kiowas in air cavalry troops.

The basis for the latest Kiowa Warrior OA (1994) was the Dual Station Unit Fielding and Training Program (DSUFTP) conducted by the Combat Aviation Training Brigade (CATB) at Ft. Hood in 1993. The planning and execution of the Kiowa Warrior DSUFTP, which consisted of both live fire and non-live fire force-on-force exercises, was coordinated between the CATB, the U.S. Army OPTEC, and DOT&E to ensure that the program provided the opportunities needed to support an adequate OPEVAL. This was an innovative use of combined testing and training, carefully coordinated in order to accomplish both testing and training objectives.

Using data from the DSUFTP, DOT&E concluded that the addition of the weapons, improved cockpit integration, and better navigational capability resulted in an aircraft that is much more effective than previous OH-58 models. Furthermore, the potential enhancements to mission planning and management provided by the aviation mission planning system and data transfer system were very apparent during the DSUFTP. These improvements were achieved without any noticeable impact on readiness as measured by the aircraft's demonstrated operational availability. However, two areas of concern were observed: (1) improved mast mounted sight operations, and (2) message interface with the Army's Advanced Field Artillery Tactical Data System.

Among the most critical concerns were the impact of weight growth on the aircraft's power margin, endurance, and autorotation performance and the impact of several important Interim Statement of Aircraft Qualification restrictions on the operational utility of the Kiowa Warrior. To address these and other concerns, a Safety Enhancement Program for the OH-58D Kiowa Warrior was initiated to incorporate an improved engine with full authority digital electronic control, crashworthy crew seats, improved master controller processor and data modem. As currently planned, the Safety Enhancement Program involves a modification of 310 aircraft beginning in FY99. Another 77 received digitization upgrades on the production line. Seats and Cockpit Air Bag Systems are to be retrofitted by units at a later date.

The Kiowa Warrior LFT&E strategy was approved by DOT&E in July 1996. An updated strategy was submitted and approved in January 1999. It identified the hardware, tests, schedule, and resources necessary to carry out the program.

TEST & EVALUATION ACTIVITY

DOT&E monitored the progress of the Safety Enhancement Program testing. Federal Aviation Administration-certified crashworthy seats—similar to those used in TH-67 training aircraft—are scheduled to be installed in Kiowa Warriors beginning in FY00. Cockpit airbags were tested in UH-60s in FY99, and will be tested in Kiowa Warriors in FY00.

During FY99, a Detailed Test Plan for the main rotor blade (static) test was prepared, and the first phase of the ballistic testing of the main rotor blades was conducted. Also, the modeling effort for the vulnerability analysis has been initiated. Both the analysis and the ballistic efforts, however, have been suspended due to lack of Army funds.

TEST & EVALUATION ASSESSMENT

There are three critical areas that need T&E before the Kiowa Warrior will be adequately tested: (1) the impact of weight growth on the aircraft's ability to safely land in an emergency situation requiring an autorotation (Safety Enhancement Program); (2) survivability (LFT&E Program); and (3) software upgrades. Progress is being made in all three areas.

The Safety Enhancement Program is expected to improve engine reliability and crew survivability, reduce pilot workload during emergency maneuvers, and provide additional digitization capabilities. The improved engines are generally performing well. Airbags are also being developed and will be installed once they are certified. However, it should be noted that the Safety Enhancement Program does not solve the safe autorotation problem–it only makes the condition more tolerable with enhanced safety features. As a result of weight growth, there is not enough energy in the rotor system to "cushion" the aircraft safely during emergencies requiring an autorotation. Consequently, the aircraft operates on the margins of safety if the crew is presented with a situation requiring an emergency autorotative landing. Under these conditions, Kiowa Warrior is therefore unsuitable for production.

Although a sufficient Live Fire test program has been identified, and testing was initiated in FY99, the program has stalled for lack of Army funding. While the Army has been directed to fund the Kiowa LFT&E, they have not programmed LFT&E funding in FY00 and FY01. The Army does not show funding in their budget for re-starting this program until FY02.

Deficiencies with the improved mast mounted sight processor have largely been fixed and test results show that the sight meets its requirements. Problems that were noted in exchanging messages with the Army's Advanced Field Artillery Tactical Data System are being corrected in the context of the Army's ongoing battlefield digitization development and experimentation. Some of these corrective actions include (1) refinements to training, and (2) tactics, techniques, and procedures. Other corrective actions involve software modifications to the aircraft's improved data modem.